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REMARKS

Claims 1-23 are pending in this application. Claims 1-23 stand rejected. No new matter has been added. It is respectfully submitted that the pending claims define allowable subject matter.

Claims 1-23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,120,452 (Barthe) or U.S. Patent 6,425,870 (Flesch) in view of U.S. Patent 5,085,221 (Ingebrigtsen). Applicant respectfully traverses this rejection for at least the reasons set forth herein.

Barthe describes a three dimensional imaging apparatus having a flexible printed circuit board 30 that traverses a fluid impervious seal 16 between a wet chamber 12 and a dry chamber 14. The flexible printed circuit 30 board connects a transducer array 18 and a motor/gear arrangement 22/24 to electronics in the dry chamber 14 for controlling the powering and movement of the transducer array 18 (column 3, lines 22-27 and column 4, line 64 to column 5, line 46).

Flesch describes a motorized multi-plane transducer tip apparatus having a flexible cable that extends from a wet chamber through a flexible sealing membrane to a dry chamber (abstract). More particularly, a sheath of flexible circuits 6 along with other conductors and wires extend through an air tight flexible membrane 10 (column 3, lines 45-54). The flexible circuits 6 provide power to the elements of a transducer 2 in the wet chamber and a motor 1 is also located in the wet chamber with a drive shaft 1a and gear arrangement to move the transducer 2 (column 4, lines 5-24).

Ingebrigtsen describes an ultrasound imaging probe having a liquid filled wet chamber closed by a plug or cover 3 (column 2, lines 41-56). A motor 7, transducer array 5 and position

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sensor 9 are all provided in the wet chamber and provided on a common rotatable axle 10 (column 2, lines 57-66). A flat cable 12 in the wet chamber has a widened region for connection to pins 3A-3Y of the plug 3 at one end and soldered or bonded at the other end to another flat cable 11 that is connected to the transducer array 5 (column 3, line 27 to column 4, line 18).

Independent claim 1, as amended, recites an ultrasound probe comprising "a second chamber...wherein the second chamber includes only a single connection member, the single connection member being only within the second chamber and having a rigid portion and a flexible portion, the rigid portion forming at least part of the sealing member." The cited art fails to describe or suggest an ultrasound probe as recited in claim 1.

As discussed in the Amendment dated January 2, 2007, Barthe and Flesch, considered alone or in combination, fail to describe or suggest an ultra-sound probe as recited in claim 1. Specifically, each of the flexible printed circuit boards described by Barthe and the flexible cable described by Flesch extend within both wet and dry chambers. In contrast, claim 1 recites a probe having a connection member that is only within a second chamber. More particularly, the connection member of claim 1 is a single member that is contained only within one chamber (i.e., in the second chamber and not the first chamber) and not in two chambers.

On page 2 of the outstanding Office Action, it is asserted that "it would nonetheless have been obvious in view of Ingebrigtsen et al for a flex circuit connecting member 12...to connect to rigid pins 3A, 3B of plug 3 which pines form part of that seal to the wet chamber." However, a combination of the flexible circuit board of Barthe or the flexible cable of Flesch with the plug of Ingebrigtsen as suggested by the Examiner does not describe or suggest each and every element of the probe recited in amended claim 1. Specifically, the combination suggested by the Examiner would include the flexible circuit board of Barthe or the flexible cable of Flesch connected to pins of the plug described by Ingebrigtsen. Accordingly, the combination suggested by the Examiner does not describe or suggest a second chamber including only a single connection member, as recited in amended claim 1. Rather, the combination suggested by

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the Examiner would provide a wet chamber that includes both the plug of Ingebrigtsen and either the flexible circuit board of Barthe or the flexible cable of Flesch. The flexible cable and the flexible circuit board are both separate components from the plug that would be interconnected to the pins of the plug. In contrast, the probe of claim 1 recites a second chamber that only has a single connection member therein. With regard to the Examiner's assertion on page 3 of the outstanding Office Action that claim 1 "is an open construct, i.e. comprising' one may read for 'single' – first – and therefore in Ingebrigtsen there is at least a single rigid connector...", Applicant notes that claim 1 has been amended to recite "wherein the second chamber includes only a single connection member."

Applicant further submits that it would not be obvious to combine the flexible circuit board of Barthe or the flexible cable of Flesch with the plug of Ingebrigtsen as a single member because there would then be no need for the pins. The combination suggested by the Examiner is more than a mere design change. Rather, the operation and structure of the probe would have to be changed.

For at least the reasons set forth above, claim 1 is submitted to be patentable over Barthe or Flesch in view of Ingebrigtsen.

Independent claim 15 recites an ultrasound probe comprising "a dry chamber having drive means for mechanically controlling at least one transducer and communication means for electrically controlling the at least one transducer." The prior art fails to describe or suggest a probe as recited in claim 15.

The drive means for mechanically controlling the transducers of all the cited prior art that have two chambers are provided in the wet chamber. In particular, the prior art references describe probes wherein the motor and gear arrangement (and shaft or similar structure) together form the drive means for mechanically controlling the transducers, for example, moving the transducer head, and are all located in the wet chamber. In contrast, the drive means recited in

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claim 15 is in the dry chamber. Moving the drive means from the wet chamber to the dry chamber is more than a mere design change and would require change to the operation and structure of the prior art devices. Accordingly, the combination of the prior art as set forth in the Office Action does not describe or suggest an ultrasound probe as recited in claim 15.

Independent claim 20, as amended, recites a connection member for an ultrasound probe comprising "a flexible portion within only a wet chamber configured to connect to at least one transducer" and "a rigid portion forming at least part of a sealing member between the wet chamber and a dry chamber, the rigid portion configured to connect to a system cable in the dry chamber, the flexible and rigid portions being a single member." The prior art fails to describe or suggest a connection member as recited in claim 20. As discussed in more detail above, the prior art, considered alone or in combination, does not describe or suggest a connection member having a flexible portion within only a wet chamber and a rigid portion, wherein the flexible and rigid portions are a single member. Rather, the combination suggested by the Examiner would provide a wet chamber that includes both the plug of Ingebrigtsen and either the flexible circuit board of Barthe or the flexible cable of Flesch, which are separate components from the plug that would be interconnected to the pins of the plug. Accordingly, the combination of the prior art as set forth in the outstanding Office Action does not describe or suggest a connection member as recited in claim 20.

Independent claim 22, as amended, recites a method for controlling an ultrasound probe comprising "communicating between at least one transducer array and a host system via a connection member, the connection member formed of a rigid portion and a flexible portion that form a single member, the flexible portion being entirely within a wet chamber and configured to connect to the at least one transducer array, the rigid portion forming at least part of a wall between the wet chamber having the at least one transducer array therein and a dry chamber having a system cable therein, the rigid portion configured to connect to the system cable, with the system cable connected to the host system." The prior art fails to describe or suggest a method as recited in claim 22. As discussed in more detail above, the prior art, considered alone

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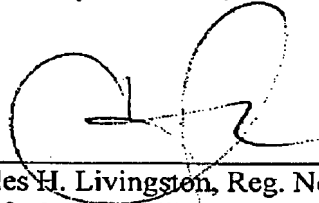
or in combination, does not describe or suggest a connection member being formed of a rigid portion and a flexible portion that form a single member, wherein the flexible portion is entirely within a wet chamber. Accordingly, the combination of the prior art as set forth in the Office Action does not describe or suggest a method as recited in claim 22.

Claims 2-14, 16-19, 21 and 23 are dependent claims and are allowable based at least on the dependency of these claims from their respective independent claim.

For at least the reasons set forth above, Applicant respectfully requests that the 35 U.S.C. § 103 rejection of the claims be withdrawn.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art fails to teach or suggest the claimed invention and all of the pending claims in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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